

AMENDMENTS TO THE CLAIMS

Claims 1-25 (Cancelled)

Claim 26. (Currently Amended) A sorting device for sorting products in a product stream, said device comprising:

an inspection unit arranged to inspect ~~the products on their acceptability~~, the inspection unit including a waveguide transmission system and at least two light sources providing light ~~arranged to be guided by a~~ to the waveguide transmission system, ~~the waveguide transmission system~~ including a rotating polygon arranged and positioned to align and reflect light from said light sources onto ~~the products to scan the products as they are in a product stream~~ transported past the inspection device;

a transport system configured to transport ~~the products in the~~ a product stream towards the inspection unit; and

a rejection unit arranged to remove unacceptable products from ~~the~~ a product stream.

Claim 27. (Currently Amended) The sorting device according to claim 26, ~~further comprising wherein the waveguide system comprises:~~

a plurality of coupling-in optical elements arranged to focus the light generated from said at least two sources into corresponding optical waveguides;

a combining unit arranged to combine the light from the optical waveguides into at least one light beam, ~~said light beam including at least one waveguide composed of the light generated from the at least two light sources~~; and

a plurality of focusing optics units arranged to focus ~~said the~~ at least one light beam onto the products in the product stream, at least one focusing unit guiding the at least one light beam towards the rotating polygon.

Claim 28. (Original) The sorting device according to claim 27, wherein the light sources are laser sources.

Claim 29. (Original) The sorting device according to claim 27, wherein the light sources are semiconductor laser sources.

Claim 30. (Original) The sorting device according to claim 29, wherein the semiconductor laser sources are cooled by means of a Peltier element.

Claim 31. (Original) The sorting device according to claim 27, wherein the light sources are solid matter laser sources.

Claim 32. (Currently Amended) The sorting device according to claim ~~25~~26, wherein the light sources radiate light of a different wavelength.

Claim 33. (Original) The sorting device according to claim 27, wherein the coupling-in optical elements are provided with connectors.

Claim 34. (Currently Amended). The sorting device according to claim 27, wherein the combining unit includes at least one dichroic element ~~elements~~ element.

Claim 35. (Currently Amended) The sorting device according to claim 27, wherein the combining unit includes at least one fused optical ~~wavelength technology~~ waveguide element.

Claim 36. (Currently Amended) A sorting device for sorting products in a product stream, said device comprising:

an inspection unit arranged to inspect the products on their acceptability on the basis of a selection based on electromagnetic radiation, the inspection unit

including a waveguide detection system disposed at a detection side thereof and configured to receive the electromagnetic radiation reflected, transmitted, emitted or transformed by the products in the product flow, ~~the waveguide system inspection unit having a waveguide transmission system~~ including a rotating polygon arranged and positioned to align and reflect electromagnetic radiation onto the products to scan the products as they are transported past the inspection device;

a transport system configured to transport the products in the product stream towards the inspection unit; and

a rejection unit arranged to remove unacceptable products from the product flow.

Claim 37. (Currently Amended) The sorting device according to claim 36, wherein the waveguide detection system comprises a bundle of optical waveguides.

Claim 38. (Currently Amended) The sorting device according to claim 37, wherein the extremities of the bundle of optical waveguides are located in an image plane of a lens system ~~such that~~ and arranged to receive an image formed by the products ~~is projected onto at least one of said the waveguide extremities, or onto an intermediate element arranged to transmit the image onto the bundle.~~

Claim 39. (Original) The sorting device according to claim 38, wherein the bundle of waveguides is divided into separate parts corresponding to well-defined portions of the formed image.

Claim 40. (Original) The sorting device according to claim 39, wherein the bundle of optical waveguides is divided into at least one substantially concentric bundle.

Claim 41. (Original) The sorting device according to claim 39, wherein the separate parts are arranged in a configuration separating each part by avoiding cross-coupling therebetween.

Claim 42. (Original) The sorting device according to claim 39, wherein the bundles forming said parts are led separately to detectors and/or optical splitting elements.

Claim 43. (Original) The sorting device according to claim 39, wherein several of said bundles comprise different parts arranged for use after the image is divided into two or more images by optical splitting elements.

Claim 44. (Original) The sorting device according to claim 43, wherein the optical splitting elements have outgoing waveguides.

Claim 45. (Currently Amended) The sorting device according to claim 36, wherein the optical waveguides comprise fibers with a large core diameter/mantle diameter ~~ratio and/or~~ ratio or a high numerical aperture.

Claim 46. (Currently Amended) The sorting device according to claim ~~25~~ 36, wherein the inspection unit at ~~a sending~~ the transmission side thereof is provided with waveguide ~~technology~~ elements transmitting light at least at the rotating polygon.

Claim 47. (Currently Amended) A sorting device for sorting products in a product stream, said device comprising:

an inspection unit arranged to inspect the products on their acceptability, the inspection unit is provided with ~~a bundle of at least two common~~ waveguides ~~and/or is provided with at least one waveguide, the bundle for a sending transmission part and a detection part of the inspection unit is common and/or the one or more~~

~~waveguides for the sending part and the detection part of the inspection unit are common, the inspection unit~~ the transmission part including a rotating polygon arranged and positioned to align and reflect electromagnetic radiation onto the products to scan the products as they are transported past the inspection device;

a transport system configured to transport the products in a product stream towards the inspection unit; and

a rejection unit arranged to remove unacceptable products out of the product stream.

Claim 48. (Original) The sorting device according to claim 47, further comprising a lens system arranged to focus emitted light onto the products and focus the light received thereby onto the waveguides.

Claim 49. (Currently Amended) The sorting device according to claim 47, wherein at least two additional waveguide systems are provided on the ~~sending~~ transmission side ~~and/or~~ and the detection side of the inspection unit.